

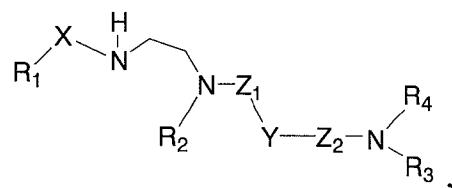
Amendments to the claims:

This listing of claims replaces all prior versions and listings of claims in the application:

Listing of claims:

1-28. (Cancelled)

29. (Original) A compound of the formula:



wherein

X is -CH₂-, -C₂H₄-, -C₃H₆-, -CH₂-CH=CH-, -CH=CH-CH₂-, -C(O)-, -SO₂-, or deleted;

Y is aryl, heteroaryl, C₃-C₈ cycloalkyl, C₅-C₈ cycloalkenyl, C₃-C₈ heterocycloalkyl, or C₅-C₈ heterocycloalkenyl; each of Z₁ and Z₂, independently, is -CH₂-, -C₂H₄-, -C₃H₆-, -CH=CH-, -CH=N-, -CH=N-NR-, -S-, -O-, -NR-, -C(O)-, or -SO₂-;

R₁ is H, C₁-C₁₀ alkyl, C₂-C₁₀ alkenyl, C₂-C₁₀ alkynyl, C₃-C₈ cycloalkyl, C₅-C₈ cycloalkenyl, C₃-C₈ heterocycloalkyl; C₅-C₈ heterocycloalkenyl, aryl, or heteroaryl;

R₂ is -A₁-B₁-D₁-E₁;

R₃ is -A₂-B₂-D₂-E₂, deleted, or, together with R₄, is C₄-C₂₀ cycloalkyl, C₄-C₂₀ cycloalkenyl, C₄-C₂₀ heterocycloalkyl, or C₄-C₂₀ heterocycloalkenyl; provided that if R₃ is deleted, -Z₂-N- is -CH=N-; and

R₄ is -A₃-B₃-D₃-E₃ or, together with R₃, is C₄-C₂₀ cycloalkyl, C₄-C₂₀ cycloalkenyl, C₄-C₂₀ heterocycloalkyl, or C₄-C₂₀ heterocycloalkenyl;

in which each of A₁, A₂, and A₃, independently, is -CH₂-, -C₂H₄-, -C₃H₆-, -C₄H₈-, -C₅H₁₀-, -CH₂C(O)-, -C(O)CH₂-, -CH₂SO₂-, -SO₂CH₂-, -CH₂-CH=CH-, -CH=CH-CH₂-, -CH(CH₂OR)-, -CH(CH₂CH₂OR)-, -CH(COOR)-, -CH(CH₂COOR)-, -CH(C(O)NR₂)-, or deleted; each of B₁, B₂, and B₃, independently, is -NR-, -CH₂-, or deleted; each of D₁, D₂, and D₃, independently, is -CH₂-, -C₂H₄-, -C₃H₆-, -CH₂-CH=CH-, -CH=CH-CH₂-, -C(O)-, -SO₂-, -C(O)-NR-, -C(S)-NR-, -NR-C(O)-, -NR-C(S)-, -CH(OR)-, -CH(CH₂OR)-, -CH(CH₂CH₂OR)-, -CH(COOR)-, 1,1-cyclopropylene, or deleted; and each of E₁, E₂, and E₃, independently, is H, C₁-C₁₀ alkyl, C₂-C₁₀ alkenyl, C₂-C₁₀ alkynyl, C₃-C₈ cycloalkyl, C₅-C₈ cycloalkenyl, C₃-C₈ heterocycloalkyl, C₅-C₈ heterocycloalkenyl, aryl, or heteroaryl; each R, independently, being H or C₁-C₁₀ alkyl.

30. (Original) The compound of claim 29, wherein X is -CH₂-, -C₂H₄-, -C₃H₆-, -CH₂-CH=CH-, -CH=CH-CH₂-, -SO₂-, or deleted; Y is aryl, heteroaryl, C₅-C₈ cycloalkenyl; each of Z₁ and Z₂, independently, is -CH₂-, -C₂H₄-, -C₃H₆-, -CH=CH-, -CH=N-NR-, -NR-, -C(O)-, or -SO₂-, R₁ is C₂-C₁₀ alkynyl, C₃-C₈ cycloalkyl, C₅-C₈ cycloalkenyl, C₃-C₈ heterocycloalkyl, aryl, or heteroaryl; R₃ is -A₂-B₂-D₂-E₂, deleted, or, together with R₄, is C₄-C₂₀ heterocycloalkyl or C₄-C₂₀ heterocycloalkenyl; R₄ is -A₃-B₃-D₃-E₃ or, together with R₃, is C₄-C₂₀ heterocycloalkyl or C₄-C₂₀ heterocycloalkenyl; each of A₁, A₂, and A₃, independently, is -CH₂-, -C₂H₄-, -C₃H₆-, -CH₂SO₂-, -SO₂CH₂-, -CH₂-CH=CH-, -CH=CH-CH₂-, or -CH(CH₂OR)-, -CH(CH₂CH₂OR)-, -CH(COOR)-, -CH(CH₂COOR)-, deleted; each of D₁, D₂, and D₃, independently, is -CH₂-, -C₂H₄-, -C₃H₆-, -CH₂-CH=CH-, -CH=CH-CH₂-, -C(O)-, -SO₂-, -CH(OR)-, -CH(COOR)-, 1,1-cyclopropylene, or deleted; and each of E₁, E₂, and E₃, independently, is H, C₃-C₈ cycloalkyl, C₅-C₈ cycloalkenyl, C₃-C₈ heterocycloalkyl, aryl, or heteroaryl.

31. (Original) The compound of claim 30, wherein X is -CH₂-, -C₂H₄-, -C₃H₆-, -SO₂-, or deleted; Y is aryl or heteroaryl; each of Z₁ and Z₂, independently, is -CH₂-, -C₂H₄-, -C₃H₆-, -CH=CH-, or -SO₂-, R₁ is C₃-C₈ heterocycloalkyl, aryl, or heteroaryl; each of A₁, A₂, and A₃, independently, is -CH₂-, -C₂H₄-, -C₃H₆-, -CH₂SO₂-,

-SO₂CH₂-, -CH(CH₂OR)-, -CH(CH₂CH₂OR)-, -CH(COOR)-, -CH(CH₂COOR)-, or deleted; each of B₁, B₂, and B₃, independently, is -NH- or deleted; and each of D₁, D₂, and D₃, independently, is -CH₂-, -C₂H₄-, -C₃H₆-, -C(O)-, -SO₂-, -CH(OR)-, -CH(COOR)-, 1,1-cyclopropylene, or deleted.

32. (Original) The compound of claim 31, wherein X is -CH₂- or -CH(CH₃)-, Y is phenyl, Z₁ is -CH₂- or -SO₂-, and Z₂ is -CH₂- or -SO₂-.

33. (Original) The compound of claim 31, wherein X is -CH₂-, Y is 4,4'-biphenyl, Z₁ is -CH₂-, and Z₂ is -CH₂-.

34. (Original) The compound of claim 31, wherein X is -CH₂-, Y is phenyl, and R₃ is deleted.

35. (Original) The compound of claim 32, wherein R₃ is -A₂-B₂-D₂-E₂ or, together with R₄, is C₄-C₂₀ heterocycloalkyl or C₄-C₂₀ heterocycloalkenyl; A₁ is -C₂H₄- or -CH(CH₃)CH₂-; A₂ is -C₂H₄- or deleted; A₃ is -CH₂-, -C₂H₄-, -C₃H₆-, -CH(CH₂OH)-, -CH(COOH)-, -CH(CH₂OCH₃)-, -CH(CH₂CH₂OH)-, -CH(CH₂COOH)-, or deleted; B₁ is -NH-, -N(CH₂CH₂OH)-, or -N(CH₂CH₃)-; D₁ is -CH₂-, -CH(CH₃)-, -CH(CH₂OH)-, -CH(CH₂CH₂OH)-, or deleted; D₂ is -CH₂- or deleted; D₃ is -CH₂-, -CH(OH)-, -CH(COOH)-, 1,1-cyclopropylene, or deleted; E₁ is H, C₃-C₈ heterocycloalkyl, aryl, or heteroaryl; E₂ is H, aryl, or heteroaryl; and E₃ is aryl, heteroaryl, C₃-C₈ cycloalkyl, C₅-C₈ cycloalkenyl, or C₃-C₈ heterocycloalkyl.

36. (Original) The compound of claim 35, wherein the compound is one of compounds 60-78, 80-84, 86-109, and 111-126.

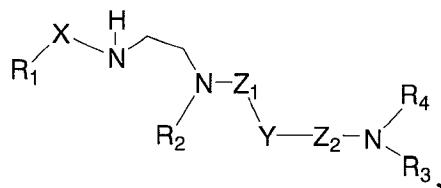
37. (Original) The compound of claim 33, wherein R₃ is -A₂-B₂-D₂-E₂; R₄ is -A₃-B₃-D₃-E₃; A₁ is -C₂H₄-; A₂ is deleted; A₃ is -CH(CH₂OH)-; B₁ is -NH-; B₂ is deleted;

B₃ is deleted; D₁ is -CH₂-; D₂ is -CH₂- or deleted; D₃ is -CH₂-; E₁ is heteroaryl; E₂ is H or heteroaryl; and E₃ is aryl.

38. (Original) The compound of claim 37, wherein the compound is compound 79 or 85.

39. (Original) The compound of claim 34, wherein R₁ is heteroaryl; R₄ is -A₃-B₃-D₃-E₃; A₁ is -C₂H₄-; A₃ is deleted; B₁ is -NH-; B₃ is -NH-; D₁ is -CH₂-; D₃ is -C(O)-; E₁ is heteroaryl; and E₃ is heteroaryl.

40. (Original) A compound of the formula:



wherein

X is -CH₂-, -C₂H₄-, -C₃H₆-, -CH₂-CH=CH-, -CH=CH-CH₂-, -SO₂-, or deleted;

Y is aryl, heteroaryl, C₃-C₈ cycloalkyl, C₅-C₈ cycloalkenyl, C₃-C₈ heterocycloalkyl, C₅-C₈ heterocycloalkenyl, or deleted;

each of Z₁ and Z₂, independently, is -CH₂-, -C₂H₄-, -C₃H₆-, -CH=CH-, -CH=N-, -CH=N-NR-, -S-, -O-, -NR-, -C(O)-, or -SO₂-,

R₁ is H, C₁-C₁₀ alkyl, C₂-C₁₀ alkenyl, C₂-C₁₀ alkynyl, C₃-C₈ cycloalkyl, C₅-C₈ cycloalkenyl, C₃-C₈ heterocycloalkyl; C₅-C₈ heterocycloalkenyl, aryl, or heteroaryl;

R₂ is -A₁-B₁-D₁-E₁;

R₃ is -A₂-B₂-D₂-E₂, deleted, or, together with R₄, is C₄-C₂₀ cycloalkyl, C₄-C₂₀ cycloalkenyl, C₄-C₂₀ heterocycloalkyl, or C₄-C₂₀ heterocycloalkenyl; provided that if R₃ is deleted, -Z₂-N- is -CH=N-; and

R₄ is -A₃-B₃-D₃-E₃ or, together with R₃, is C₄-C₂₀ cycloalkyl, C₄-C₂₀ cycloalkenyl, C₄-C₂₀ heterocycloalkyl, or C₄-C₂₀ heterocycloalkenyl;

in which each of A₁, A₂, and A₃, independently, is -CH₂-, -C₂H₄-, -C₃H₆-, -C₄H₈-, -C₅H₁₀-, -CH₂C(O)-, -C(O)CH₂-, -CH₂SO₂-, -SO₂CH₂-, -CH₂-CH=CH-, -CH=CH-CH₂-, -CH(CH₂OR)-, -CH(CH₂CH₂OR)-, -CH(COOR)-, -CH(CH₂COOR)-, -CH(C(O)NR₂)-, or deleted; each of B₁, B₂, and B₃, independently, is -NR-, -CH₂-, or deleted; each of D₁, D₂, and D₃, independently, is -CH₂-, -C₂H₄-, -C₃H₆-, -CH₂-CH=CH-, -CH=CH-CH₂-, -SO₂-, -C(O)-NR-, -C(S)-NR-, -NR-C(O)-, -NR-C(S)-, -CH(OR)-, -CH(CH₂OR)-, -CH(CH₂CH₂OR)-, -CH(COOR)-, 1,1-cyclopropylene, or deleted; E₁ is H, C₁-C₁₀ alkyl, C₂-C₁₀ alkenyl, C₂-C₁₀ alkynyl, C₃-C₈ cycloalkyl, C₅-C₈ cycloalkenyl, C₃-C₈ heterocycloalkyl, C₅-C₈ heterocycloalkenyl, aryl, 5-membered heteroaryl, fused heteroaryl, substituted 6-membered heteroaryl, unsubstituted pyranyl, unsubstituted pyrazinyl, unsubstituted pyrimidinyl, or unsubstituted pyridazinyl; and each of E₂ and E₃, independently, is H, C₁-C₁₀ alkyl, C₂-C₁₀ alkenyl, C₂-C₁₀ alkynyl, C₃-C₈ cycloalkyl, C₅-C₈ cycloalkenyl, C₃-C₈ heterocycloalkyl, C₅-C₈ heterocycloalkenyl, aryl, or heteroaryl; each R, independently, being H or C₁-C₁₀ alkyl.

41. (Original) The compound of claim 40, wherein X is -CH₂-, -C₂H₄-, -C₃H₆-, -CH₂-CH=CH-, -CH=CH-CH₂-, -SO₂-, or deleted; Y is aryl, heteroaryl, C₅-C₈ cycloalkenyl, or deleted; each of Z₁ and Z₂, independently, is -CH₂-, -C₂H₄-, -C₃H₆-, -CH=CH-, -CH=N-NR-, -NR-, -C(O)-, or -SO₂-, R₁ is C₂-C₁₀ alkynyl, C₃-C₈ cycloalkyl, C₅-C₈ cycloalkenyl, C₃-C₈ heterocycloalkyl, aryl, or heteroaryl; R₃ is -A₂-B₂-D₂-E₂, deleted, or, together with R₄, is C₄-C₂₀ heterocycloalkyl or C₄-C₂₀ heterocycloalkenyl; R₄ is -A₃-B₃-D₃-E₃ or, together with R₃, is C₄-C₂₀ heterocycloalkyl or C₄-C₂₀ heterocycloalkenyl; each of A₁, A₂, and A₃, independently, is -CH₂-, -C₂H₄-, -C₃H₆-, -CH₂SO₂-, -SO₂CH₂-, -CH₂-CH=CH-, -CH=CH-CH₂-, -CH(CH₂OR)-, -CH(CH₂CH₂OR)-, -CH(COOR)-, -CH(CH₂COOR)-, or deleted; each of D₁, D₂, and D₃, independently, is -CH₂-, -C₂H₄-, -C₃H₆-, -CH₂-CH=CH-, -CH=CH-CH₂-, -C(O)-, -SO₂-, -CH(OR)-, -CH(COOR)-, 1,1-cyclopropylene, or deleted; E₁ is H, C₃-C₈ cycloalkyl, C₅-C₈ cycloalkenyl, C₃-C₈ heterocycloalkyl, aryl, 5-membered heteroaryl, fused heteroaryl,

or substituted 6-membered heteroaryl; and each of E₂ and E₃, independently, is H, C₃-C₈ cycloalkyl, C₅-C₈ cycloalkenyl, C₃-C₈ heterocycloalkyl, aryl, or heteroaryl.

42. (Original) The compound of claim 41, wherein X is -CH₂-, -C₂H₄-, -C₃H₆-, -SO₂-, or deleted; Y is aryl, heteroaryl, or deleted; each of Z₁ and Z₂, independently, is -CH₂-, -C₂H₄-, -C₃H₆-, -CH=CH-, or -SO₂-, R₁ is C₃-C₈ heterocycloalkyl, aryl, or heteroaryl; each of A₁, A₂, and A₃, independently, is -CH₂-, -C₂H₄-, -C₃H₆-, -CH₂SO₂-, -SO₂CH₂-, -CH(CH₂OR)-, -CH(CH₂CH₂OR)-, -CH(COOR)-, -CH(CH₂COOR)-, or deleted; each of B₁, B₂, and B₃, independently, is -NH- or deleted; each of D₁, D₂, and D₃, independently, is -CH₂-, -C₂H₄-, -C₃H₆-, -C(O)-, -SO₂-, -CH(OR)-, -CH(COOR)-, 1,1-cyclopropylene, or deleted; E₁ is H, aryl, 5-membered heteroaryl, or fused heteroaryl; and each of E₂ and E₃, independently, is H, aryl, or heteroaryl.

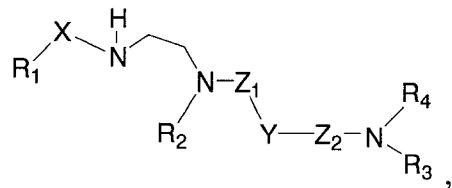
43. (Original) The compound of claim 42, wherein X is -CH₂- or -CH(CH₃)-, Y is deleted, Z₁ is -CH₂-, and Z₂ is -CH₂-.

44. (Original) The compound of claim 43, wherein R₁ is aryl; R₃ is -A₂-B₂-D₂-E₂; R₄ is -A₃-B₃-D₃-E₃; A₁ is -C₂H₄-, A₂ is deleted; A₃ is deleted; B₁ is -NH-, B₂ is deleted; B₃ is deleted; D₁ is -CH₂-; D₂ is deleted; D₃ is -CH₂-; E₁ is aryl; E₂ is H; and E₃ is aryl.

45. (Original) The compound of claim 43, wherein R₁ is heteroaryl; R₃ is -A₂-B₂-D₂-E₂; R₄ is -A₃-B₃-D₃-E₃; A₁ is -C₂H₄- or deleted; A₂ is deleted; A₃ is deleted; B₂ is deleted; B₃ is deleted; D₁ is -CH₂-; D₂ is deleted; D₃ is -CH₂-; E₁ is aryl, 5-membered heteroaryl, or fused heteroaryl; E₂ is H; and E₃ is heteroaryl.

46. (Original) The compound of claim 45, wherein the compound is compound 110.

47. (Original) A pharmaceutical composition comprising a compound of the formula:



wherein

X is -CH₂-, -C₂H₄-, -C₃H₆-, -CH₂-CH=CH-, -CH=CH-CH₂-, -C(O)-, -SO₂-, or deleted;

Y is aryl, heteroaryl, C₃-C₈ cycloalkyl, C₅-C₈ cycloalkenyl, C₃-C₈ heterocycloalkyl, C₅-C₈ heterocycloalkenyl, or deleted;
each of Z₁ and Z₂, independently, is -CH₂-, -C₂H₄-, -C₃H₆-, -CH=CH-, -CH=N-, -CH=N-NR-, -S-, -O-, -NR-, -C(O)-, or -SO₂-,

R₁ is H, C₁-C₁₀ alkyl, C₂-C₁₀ alkenyl, C₂-C₁₀ alkynyl, C₃-C₈ cycloalkyl, C₅-C₈ cycloalkenyl, C₃-C₈ heterocycloalkyl; C₅-C₈ heterocycloalkenyl, aryl, or heteroaryl;

R₂ is -A₁-B₁-D₁-E₁;

R₃ is -A₂-B₂-D₂-E₂, deleted, or, together with R₄, is C₄-C₂₀ cycloalkyl, C₄-C₂₀ cycloalkenyl, C₄-C₂₀ heterocycloalkyl, or C₄-C₂₀ heterocycloalkenyl; provided that if R₃ is deleted, -Z₂-N- is -CH=N-; and

R₄ is -A₃-B₃-D₃-E₃ or, together with R₃, is C₄-C₂₀ cycloalkyl, C₄-C₂₀ cycloalkenyl, C₄-C₂₀ heterocycloalkyl, or C₄-C₂₀ heterocycloalkenyl;

in which each of A₁, A₂, and A₃, independently, is -CH₂-, -C₂H₄-, -C₃H₆-, -C₄H₈-, -C₅H₁₀-, -CH₂C(O)-, -C(O)CH₂-, -CH₂SO₂-, -SO₂CH₂-, -CH₂-CH=CH-, -CH=CH-CH₂-, -CH(CH₂OR)-, -CH(CH₂CH₂OR)-, -CH(COOR)-, -CH(CH₂COOR)-, -CH(C(O)NR₂)-, or deleted; each of B₁, B₂, and B₃, independently, is -NR-, -CH₂-, or deleted; each of D₁, D₂, and D₃, independently, is -CH₂-, -C₂H₄-, -C₃H₆-, -CH₂-CH=CH-, -CH=CH-CH₂-, -C(O)-, -SO₂-, -C(O)-NR-, -C(S)-NR-, -NR-C(O)-, -NR-C(S)-, -CH(OR)-, -CH(CH₂OR)-, -CH(CH₂CH₂OR)-, -CH(COOR)-, 1,1-cyclopropylene, or deleted; and each of E₁, E₂, and E₃, independently, is H, C₁-C₁₀ alkyl, C₂-C₁₀ alkenyl, C₂-C₁₀ alkynyl, C₃-C₈ cycloalkyl,

C₅-C₈ cycloalkenyl, C₃-C₈ heterocycloalkyl, C₅-C₈ heterocycloalkenyl, aryl, or heteroaryl; each R, independently, being H or C₁-C₁₀ alkyl; and a pharmaceutically acceptable carrier.

48. (Original) The composition of claim 47, wherein X is -CH₂-, -C₂H₄-, -C₃H₆-, -CH₂-CH=CH-, -CH=CH-CH₂-, -SO₂-, or deleted; Y is aryl, heteroaryl, C₅-C₈ cycloalkenyl, or deleted; each of Z₁ and Z₂, independently, is -CH₂-, -C₂H₄-, -C₃H₆-, -CH=CH-, -CH=N-NR-, -NR-, -C(O)-, or -SO₂-, R₁ is C₂-C₁₀ alkynyl, C₃-C₈ cycloalkyl, C₅-C₈ cycloalkenyl, C₃-C₈ heterocycloalkyl, aryl, or heteroaryl; R₃ is -A₂-B₂-D₂-E₂, deleted, or, together with R₄, is C₄-C₂₀ heterocycloalkyl or C₄-C₂₀ heterocycloalkenyl; R₄ is -A₃-B₃-D₃-E₃ or, together with R₃, is C₄-C₂₀ heterocycloalkyl or C₄-C₂₀ heterocycloalkenyl; each of A₁, A₂, and A₃, independently, is -CH₂-, -C₂H₄-, -C₃H₆-, -CH₂SO₂-, -SO₂CH₂-, -CH₂-CH=CH-, -CH=CH-CH₂-, or -CH(CH₂OR)-, -CH(CH₂CH₂OR)-, -CH(COOR)-, -CH(CH₂COOR)-, deleted; each of D₁, D₂, and D₃, independently, is -CH₂-, -C₂H₄-, -C₃H₆-, -CH₂-CH=CH-, -CH=CH-CH₂-, -C(O)-, -SO₂-, -CH(OR)-, -CH(COOR)-, 1,1-cyclopropylene, or deleted; and each of E₁, E₂, and E₃, independently, is H, C₃-C₈ cycloalkyl, C₅-C₈ cycloalkenyl, C₃-C₈ heterocycloalkyl, aryl, or heteroaryl.

49. (Original) The composition of claim 48, wherein X is -CH₂-, -C₂H₄-, -C₃H₆-, -SO₂-, or deleted; Y is aryl, heteroaryl, or deleted; each of Z₁ and Z₂, independently, is -CH₂-, -C₂H₄-, -C₃H₆-, -CH=CH-, or -SO₂-, R₁ is C₃-C₈ heterocycloalkyl, aryl, or heteroaryl; each of A₁, A₂, and A₃, independently, is -CH₂-, -C₂H₄-, -C₃H₆-, -CH₂SO₂-, -SO₂CH₂-, -CH(CH₂OR)-, -CH(CH₂CH₂OR)-, -CH(COOR)-, -CH(CH₂COOR)-, or deleted; each of B₁, B₂, and B₃, independently, is -NH- or deleted; and each of D₁, D₂, and D₃, independently, is -CH₂-, -C₂H₄-, -C₃H₆-, -C(O)-, -SO₂-, -CH(OR)-, -CH(COOR)-, 1,1-cyclopropylene, or deleted.

50. (Original) The composition of claim 49, wherein X is -CH₂- or -CH(CH₃)-, Y is deleted, Z₁ is -CH₂-, and Z₂ is -CH₂-.

51. (Original) The composition of claim 49, wherein X is -CH₂- or -CH(CH₃)-, Y is phenyl, Z₁ is -CH₂- or -SO₂-, and Z₂ is -CH₂- or -SO₂-.

52. (Original) The composition of claim 49, wherein X is -CH₂-, Y is 4,4'-biphenyl, Z₁ is -CH₂-, and Z₂ is -CH₂-.

53. (Original) The composition of claim 49, wherein X is -CH₂-, Y is phenyl, and R₃ is deleted.

54. (Original) The composition of claim 50, wherein R₃ is -A₂-B₂-D₂-E₂; R₄ is -A₃-B₃-D₃-E₃; A₁ is -C₂H₄- or deleted; A₂ is deleted; A₃ is deleted; B₂ is deleted; B₃ is deleted; D₁ is -CH₂-; D₂ is deleted; D₃ is -CH₂-; E₁ is aryl or heteroaryl; E₂ is H; and E₃ is aryl or heteroaryl.

55. (Original) The composition of claim 51, wherein R₃ is -A₂-B₂-D₂-E₂ or, together with R₄, is C₄-C₂₀ heterocycloalkyl or C₄-C₂₀ heterocycloalkenyl; A₁ is -C₂H₄- or -CH(CH₃)CH₂-; A₂ is -C₂H₄- or deleted; A₃ is -CH₂-, -C₂H₄-, -C₃H₆-, -CH(CH₂OH)-, -CH(COOH)-, -CH(CH₂OCH₃)-, -CH(CH₂CH₂OH)-, -CH(CH₂COOH)-, or deleted; B₁ is -NH-, -N(CH₂CH₂OH)-, or -N(CH₂CH₃)-; D₁ is -CH₂-, -CH(CH₃)-, -CH(CH₂OH)-, -CH(CH₂CH₂OH)-, or deleted; D₂ is -CH₂- or deleted; D₃ is -CH₂-, -CH(OH)-, -CH(COOH)-, 1,1-cyclopropylene, or deleted; E₁ is H, C₃-C₈ heterocycloalkyl, aryl, or heteroaryl; E₂ is H, aryl, or heteroaryl; and E₃ is aryl, heteroaryl, C₃-C₈ cycloalkyl, C₅-C₈ cycloalkenyl, or C₃-C₈ heterocycloalkyl.

56. (Original) The composition of claim 52, wherein R₃ is -A₂-B₂-D₂-E₂; R₄ is -A₃-B₃-D₃-E₃; A₁ is -C₂H₄-; A₂ is deleted; A₃ is -CH(CH₂OH)-; B₁ is -NH-; B₂ is deleted; B₃ is deleted; D₁ is -CH₂-; D₂ is -CH₂- or deleted; D₃ is -CH₂-; E₁ is heteroaryl; E₂ is H or heteroaryl; and E₃ is aryl.

57. (Original) The composition of claim 53, wherein R₁ is heteroaryl; R₄ is -A₃-B₃-D₃-E₃; A₁ is -C₂H₄-; A₃ is deleted; B₁ is -NH-; B₃ is -NH-; D₁ is -CH₂-; D₃ is -C(O)-; E₁ is heteroaryl; and E₃ is heteroaryl.